

REMARKS

This application was filed with six claims. Claims 7-11 were added in a prior amendment, and new claims 12-16 are added in this paper. Claims 1-16 are thus now pending in the application for examination.

Claims 1-5, and 7-10 were rejected in the Office Action as allegedly anticipated under section 102 by the Hanazumi reference. Claims 6 and 11 were rejected under section 103 as allegedly obvious in view of the Hanazumi reference in combination of the Takehara reference. These rejections are respectfully traversed.

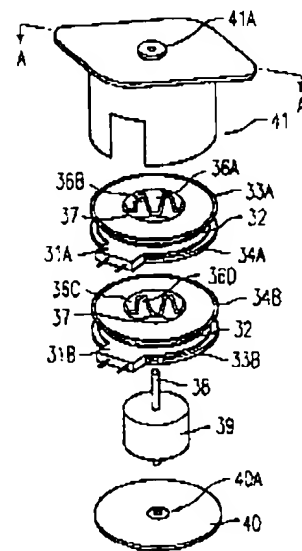
The Examiner cites a prior art stepping motor described in the "Background of the Invention" section of the Hanazumi patent. That motor is shown in Hanazumi's Figure 6, which is reproduced here.

The prior art motor includes a pair of bobbins or yokes 31a and 31b with wire coils wrapped around them. Each of these yokes has a pair of flanges, which correspond generally to the "cores" in this application's claims.

A cup frame 41 fits over the yokes 31a and 31b. Hanazumi recognizes that good contact between the cup frame and the yokes can enhance the magnetic performance of the motor:

In such a configuration, however, magnetic balance of the bobbins 31a and 31b cannot be readily achieved during assembly, resulting in stepping angle errors of the shaft 38.

Since the cup frame 41 is formed by press working, its production cost is high and the cap tends to have a tapered shape. Therefore, the inside face of the cylindrical section comes in insufficient contact with the yokes 31a and 31b to achieve a precise torque generation and stepping angle. *Further, an additional assembly*



step, such as cramping or welding, is required for contact of the cup frame with the yokes.

Hanazumi patent, col. 1, lines 53-63 (emphasis supplied).

Hanazumi thus suggests that the cup frame might be welded to the yokes. It is important to note, though, that this is *all* that Hanazumi has to say about welding. Hanazumi says nothing about what parts of Hanazumi's yokes should be welded to the cup frame, and nothing about the specific location or locations of any such welding.

The applicant has discovered that it is particularly useful to form welds between an outer case and the *inner* cores of such a motor. Additional welds may be provided, if desired, at the outer cores in addition to the inner cores, but the outer core welds are less important than the inner core welds and the outer core welds will not be included in at least some workable motors.^{1/}

The Examiner alleges that Hanazumi teaches a motor "wherein the case (41) is welded to at least the inner cores." *Office Action* dated Nov. 4, 2002, at page 2. This allegation is simply not true. With respect to welding, Hanazumi says –

an additional assembly step, such as cramping or welding, is required for contact of the cup frame with the yokes^{2/}

– and that is all Hanazumi has to say about welding. Nowhere does Hanazumi teach welding the cup frame to the inner parts of the yokes (*i.e.*, the inner cores). That information is simply not present in Hanazumi. Hanazumi suggests that the cup frame might be welded to the yokes, but is entirely silent as to what parts should be welded or where. Independent claim 1 is thus not anticipated by Hanazumi, and the prompt allowance of claim 1 (and claims 2-5, which depend from claim 1) is therefore respectfully requested.

^{1/} This application describes motors of both types – motors in which the case is welded exclusively to the inner cores, and motors in which the case is welded to both the inner *and* the outer cores. *See, e.g., Application*, at page 7, lines 5-11.

^{2/} *Hanazumi*, col. 1, lines 61-63.

Claim 7 includes elements similar to those of claim 1. Claim 7, though, requires that the case be "welded to at least the inner cores and the outer cores." Again, Hanazumi does not specify which cores or yokes, if any, that the cup frame or case should be welded to, and Hanazumi certainly does not describe a case being welded both to inner *and* outer cores. Hanazumi thus fails to teach this element of claim 7, and claim 7 is thus patentable over the cited art, as are claims 8-11, which depend from claim 7.

New independent claim 12 includes elements generally similar to independent claims 1 and 7. New independent claim 12, though, requires a case "welded to the inner cores but not welded to the outer cores," *i.e.*, a case welded to the inner cores exclusive of the outer cores. This claim is believed patentable over the cited art for reasons substantially the same as those described above in connection with the other independent claims, *i.e.*, that Hanazumi – though it does describe welding a case to cores – does not say where those welds should be placed or which cores should be involved. Independent claim 12 and dependent claims 13-16 are thus believed patentable, and the Examiner's prompt allowance of those claims is therefore respectfully requested.

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. Reexamination and reconsideration of the application, as amended, are requested.

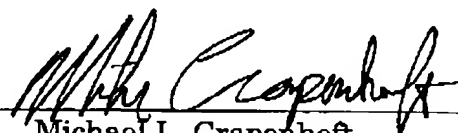
If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is invited to call the undersigned attorney at the Los Angeles, California telephone number (213) 337-6711 to discuss the steps necessary for placing the application in condition for allowance.

If there are any fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-1314.

Respectfully submitted,
HOGAN & HARTSON L.L.P.

Date: May 5, 2003

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